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| APPLICATION NO. | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO. | CONFIRMATION NO. |
|-----------------|-------------|----------------------|---------------------|------------------|
| 09/530,122 | 04/20/2000 | HIROKI NAKAHARA | 9319S-000126 | 2816 |

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EXAMINER

QI, ZHI QIANG

| | |
|----------|--------------|
| ART UNIT | PAPER NUMBER |
|----------|--------------|

2871

DATE MAILED: 02/06/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

| | | | |
|------------------------------|------------------------|---------------------|--|
| Office Action Summary | Application No. | Applicant(s) | |
| | 09/530,122 | NAKAHARA ET AL. | |
| | Examiner | Art Unit | |
| | Mike Qi | 2871 | |

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 30 December 2002.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-21 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-21 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on _____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) Paper No(s). _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449) Paper No(s) <u>5</u> . | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

The previous restriction has been withdrawn after reconsideration of the applicant's response. The rejection for the claims is presented below.

Claim Objections

1. Claim 16 is objected to because of the following informalities:

Claim 16, recitation "... said first and second transparent insulation films complimenting a configuration of said first and second alignment layers." That seems to be " ... said first and second transparent insulation films complementing a configuration of said first and second alignment layers."

Appropriate correction is required.

Claim Rejections - 35 USC § 103

2. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

3. Claims 1,10 and 17 are rejected under 35 U.S.C. 103(a) as being unpatentable over Applicant admitted prior art in view of US 6,507,381 (Katsuya et al).

Claims 1, 10 and 17, Applicant admitted prior art discloses (page 1, line 10 – page 4, line 21; Figs.11-12) that a liquid crystal panel comprising:
(concerning claim 1)

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- a pair of rectangular substrates (1, 2) bonded to each other by a sealant (3) with a predetermined gap therebetween;
- a liquid crystal (40) enclosed in the region delimited by the sealant (3) between the pair of substrates (1,2);
- electrodes (6A,7A) formed on each of the pair of substrates (1,2);
- each of the pair of substrates (1,2) is provided with an alignment layer (13, 23) formed on the electrode-side surface.

(concerning claim 10)

- a first substrate (1);
- first electrodes (6A) formed on the first substrate;
- a first alignment layer(13) formed over the first electrodes (6A);
- a second substrate (2);
- a second electrodes (7A) formed on the second substrate (2);
- a second alignment layer (23) formed over the second electrodes (7A);
- a sealant (3) coupled between the first and the second substrates so as to form a gap therebetween.

(concerning claim 17)

- providing a first substrate (1);
- defining a plurality of smaller substrate forming region on the first substrate (1), and the plurality of smaller substrate forming region being divided by a plurality of projected cutting lines (L1,L2);

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- depositing electrodes (6A) on the first substrate (1) within each of the smaller substrate forming regions;
- defining a sealant deposit region (3) along each of the smaller substrate forming regions;
- depositing a thin film for forming an alignment layer (13) on the first substrate (1).

Applicant admitted prior art does not expressly disclose that the alignment layer being formed up to the region overlapping the sealant forming region which is corresponding to at least three sides of the substrate provided with the alignment layer, or the sealant engaging the first and second alignment layer on at least three sides of the first and second substrates, or the alignment layer engaging the sealant deposit region on at least three sides of each of the smaller substrate forming regions.

However, the structure of the alignment layers overlap the sealant forming regions was common and known in the art. Katsuya discloses (col.4, line 59 – col.8, line 3; Fig.2) that a structure of a liquid crystal panel (10) in which the alignment films (12a,12b) overlap the sealer (15), or in other words, the sealant engaging the alignment films, or other words, the alignment films engaging the sealant deposit region. The rectangular substrates have four sides, so that the sealant must be formed around at least three sides. Such structure would miniaturize the liquid crystal panel, and the display area would be utilized efficiently, of cause, it would enlarge the display area.

Therefore, it would have been obvious to those skilled in the art at the time the invention was made to arrange the alignment layers overlapping the sealant forming

region as claimed in claims 1, 10 and 17 for miniaturizing the liquid crystal panel and efficiently utilizing the display area.

4. Claims 2-9, 11-16, 18-21 are rejected under 35 U.S.C. 103(a) as being unpatentable over Applicant admitted prior art and Katsuya as applied to claims 1, 10 and 17 above, and further in view of US 5,150,239 (Watanabe et al).

Claim 2, Watanabe discloses (col.1, lines 14-35) that a one-pack type or single-liquid type epoxy resin adhesive (such as one-pack type thermosetting epoxy adhesive) has been conventionally used as an adhesive for constituting a sealant for liquid crystal cells, because of its high strength and excellent heat resistance, chemical resistance and moisture resistance, etc. Therefore, using one-part thermosetting epoxy as a sealant is a conventional, and would have been at least obvious.

Claims 3-4, the alignment layers is formed up to the region overlapping the sealant forming regions as the explanation of Katsuya above, that was common and known in the art. The rectangular substrates have four sides, so that the sealant must be deposited corresponding to at least three sides of the substrates (one side would be used for the input-output terminals and terminals for conducting between substrates, i.e., the electrical wirings.) Therefore, it would have been obvious to those skilled in the art at the time the invention was made to arrange the sealant corresponding to four sides of the substrates or at least three sides excluding one side for the electrical wirings as claimed in claims 3-4 for achieving good sealing between the substrates.

Claim 5, Applicant admitted prior art discloses (Fig.11) a transparent insulating film (22) covering the electrodes (7A) and overlapping the alignment layer (23).

Claims 6-9, Applicant admitted prior art discloses (Figs.11-12) that the electrodes (7A) are formed on the surface of a large substrate (2) for forming a plurality of pair of substrates along cutting projection lines (L1,L2). Although Applicant admitted prior art does not expressly disclose the alignment layers are formed overlapping the sealant including the cutting projection lines, but Katsuya discloses (Fig.2) that the alignment layers are formed overlapping the sealant and overlapping the edge portion of the sealant (the cutting projection lines) and alignment films would be formed in strips along the cutting projection line, as the explanation of Katsuya above, that was common and known in the art, and would have been at least obvious.

Claims 11-14, Katsuya discloses (Fig.2) that the first alignment layer (12a) is interposed between the sealant (15) and the first substrate (11a); the second alignment layer (12b) is interposed between the sealant (15) and the second substrate (11b); the first alignment layer (12a) extends to a perimeter of the first substrate (11a); and the second alignment layer (12b) extends to a perimeter of the second substrate (11b). As the explanation of the Katsuya above, such structure of liquid crystal panel would miniaturize the liquid crystal panel, and the display area would be utilized efficiently, of cause, it would enlarge the display area.

Therefore, it would have been obvious to those skilled at the time the invention was made to arrange the alignment layers overlapping the sealant forming region as claimed in claims 11-14 for miniaturizing the liquid crystal panel and efficiently utilizing the display area.

Claim 15, Applicant admitted prior art discloses (Fig.12) that the rectangular substrates have four sides, and one side would be used for the input-output terminals, i.e., the electrical wirings.

Claim 16, Applicant admitted prior art discloses (Fig.11) that a first transparent insulating film (12) interposed between the first alignment layer (13) and the first substrate (1) over the first electrodes (6A); a second transparent insulating film (22) interposed between the second alignment layer (23) and the second substrate (2) over the second electrode (7A); and the Fig.11B shows the first and second transparent insulation films (12,22) are complementing a configuration of the first and second alignment layers (13,23).

Claims 18-19, Katsuya discloses (Fig.2) that a structure of a liquid crystal panel in which the alignment film (12b) is deposited to overlap the sealant deposit region (15) and extends to the edge portion of the panel, so that the alignment film (12b) is also overlap the plurality of projected cutting lines. As the explanation of the Katsuya above, such structure of liquid crystal panel would miniaturize the liquid crystal panel, and the display area would be utilized efficiently, of cause, it would enlarge the display area.

Therefore, it would have been obvious to those skilled at the time the invention was made to arrange the alignment layers overlapping the sealant forming region as claimed in claims 18-19 for miniaturizing the liquid crystal panel and efficiently utilizing the display area.

Claim 20, Applicant admitted prior art discloses (Fig.11-12) that to bond the substrates must deposit the sealant on the sealant deposit region, and it was common

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and known in the art to deposit the sealant on each smaller substrate as the stronger bonding.

Claim 21, Applicant admitted prior art discloses (Figs.11-12) that providing a second substrate (2); defining a plurality of second smaller substrate being divided by a plurality of second projected cutting lines (L1,L2); depositing second electrode (7A); defining a second sealant deposit region along each second smaller substrate; depositing a second alignment layer (23) on the second substrate (2); bonding the substrates; cutting the first and second substrate along the projecting cutting lines (L1, L2). Although Applicant admitted prior art does not disclose the alignment layer engaging the sealant deposit region, but Katsuya discloses (col.4, line 59 – col.8, line 3; Fig.2) that a structure of a liquid crystal panel (10) in which the alignment films (12a,12b) engaging the sealant deposit region. The rectangular substrates have four sides, so that the sealant must be formed around at least three sides. Such structure would miniaturize the liquid crystal panel, and the display area would be utilized efficiently, of cause, it would enlarge the display area.

Therefore, it would have been obvious to those skilled at the time the invention was made to arrange the alignment layers engaging the sealant forming region as claimed in claim 21 for miniaturizing the liquid crystal panel and efficiently utilizing the display area.

Remarks [product-by-process]

5. Claims 6-9, claimed phrases "a method of fabricating a liquid crystal panel defined in claim 1", "a method of fabricating a liquid crystal panel defined in claim 6", "a method of fabricating a liquid crystal panel defined in claim 7" have not been given patentable weight, because they have been held that even though product-by-process claims are limited by and defined by process, determination of patentability is based on the product itself. See *In re Thorpe*, 777 F.2d 695,697,227 USPQ 964,966 (Federal Cir.1985).


Conclusion

6. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. Such as the references US 4,391,491, US 5,396,355, etc.

7. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Mike Qi whose telephone number is (703) 308-6213. The examiner can normally be reached on Monday to Thursday 8:00am-5:00pm.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 308-0956.

Mike Qi
January 23, 2003



JAMES DUDEK
PRIMARY EXAMINER